Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: TAQA North USA, Inc.
Well Name/Number: Hellegaard 10-9H-2
Location: NE SE Section 10 T37N R57E
County: Sheridan**, MT; Field (or Wildcat)** Wildcat (Flat Lake)

Air Quality

(possible concerns)
Long drilling time: No, 20-30 days drilling time.
Unusually deep drilling (high horsepower rig): Heavy double derrick drilling rig 900-1000 HP (Estimated) to drill a Bakken formation single lateral horizontal well, 12,335'MD/7,763'TVD.
Possible H2S gas production: Slight chance H2S gas from Mississippian Formations.
In/near Class I air quality area: No Class I air quality area nearby.
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:
X Air quality permit (AQB review)
__ Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:_____

Comments: If there are existing pipelines for natural gas in the area then associated gas must be tied into system or if no gathering system nearby associated gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)
Salt/oil based mud: Intermediate string hole will be drilled with oil based invert mud system and openhole horizontal production hole will be drilled with oil based invert mud system. Surface casing hole will be drilled with a freshwater and freshwater mud system.
High water table: No high water table anticipated.
Surface drainage leads to live water: No, live water nearby. Closest drainages are an unnamed ephemeral drainage, about ¼ of a mile to the southeast and an unnamed pothole lake, about ½ of a mile to the southwest from this location.
Water well contamination: None, closest water wells in the area are about 3/8 of a mile to the southwest, about 1/2 of a mile to the north and about 7/8 of a mile to the southeast from this location. Surface hole will be drilled with freshwater and freshwater drilling muds. The surface casing setting depth.of 1250' should be below all freshwater zones.
Porous/permeable soils: Yes, sandy clay soils.
Class I stream drainage: No, Class I stream drainages.

Mitigation:
__ Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
X Closed mud system
X Off-site disposal of solids/liquids (in approved facility)
X Other: Freshwater drilling fluids will be land applied with surface owner approval.

Comments: 1250' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and operational BOP equipment to prevent problems in and around freshwater slough.

Soils/Vegetation/Land Use

(possible concerns)
Steam crossings: None anticipated.
High erosion potential: No, moderate cut, up to 23.0' and moderate fill, up to 23.0', required.
Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.
Unusually large wellsite: No, large wellsite, 450'X445' a two well location for the Hellegaard 10-9H-2 and the Hellegaard 10-9H.
Damage to improvements: Slight, surface use is a cultivated field.
Conflict with existing land use/values: Slight

Mitigation
__ Avoid improvements (topographic tolerance)
__ Exception location requested
X Stockpile topsoil
__ Stream Crossing Permit (other agency review)
X Reclaim unused part of wellsite if productive
__ Special construction methods to enhance reclamation
__ Other _____

Comments: Access will use existing county road, Ueland Road and existing section line lease road. A short access road will be built into location off the section line lease road, about 33.5'. Surface hole (freshwater) cuttings will be mixed buried on site. Oil based invert mud cuttings will be trucked to an approved waste disposal facility. Oil based drilling fluids will be recycled to the next location or returned to the mud company's recycling facility. Freshwater surface fluids will be land applied. No concerns.

Health Hazards/Noise

(possible concerns)
Proximity to public facilities/residences: Closest residences are about 5/8 of a mile to the southwest, about 5/8 of a mile to the southeast and 1.25 miles to the northeast and about 1 mile to the northeast from this location.
Possibility of H2S: Yes, slight, Mississippian Formations.
Size of rig/length of drilling time: Heavy double drilling rig 20 to 30 days drilling time.

Mitigation:
X Proper BOP equipment
__ Topographic sound barriers
__ H2S contingency and/or evacuation plan
__ Special equipment/procedures requirements
__ Other:_____

Comments: Adequate surface casing cemented to surface with operational BOP stack should mitigate any problems.

Wildlife/recreation

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): None identified.
Proximity to recreation sites: None identified.
Creation of new access to wildlife habitat: No
Conflict with game range/refuge management: No
Threatened or endangered Species: Only species identified as threatened or endangered are the Whooping Crane and Piping Plover. Candidate species is the Sprague's Pipit. NH Tracker site indicates fourteen (14) species of concern: Baird's Sparrow, Le Conte's Sparrow, Nelson's Sparrow, Sprague's Pipit, Ferruginous Hawk, Chestnut-collared Longspur, Piping Plover, Black Tern, Sedge Wren, Yellow Rail, Bobolink, Whooping Crane, McCown's Longspur and Smooth Greensnake.

Mitigation:
__ Avoidance (topographic tolerance/exception)
__ Other agency review (DFWP, federal agencies, DSL)
__ Screening/fencing of pits, drillsite
__ Other:_____
Comments: Private cultivated surface lands. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern are discovered at this location.

Historical/Cultural/Paleontological

(possible concerns)
Proximity to known sites: None identified.
Mitigation
__ avoidance (topographic tolerance, location exception)
__ other agency review (SHPO, DSL, federal agencies)
__ Other:_____
Comments: Private cultivated surface lands. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite.

Social/Economic

(possible concerns)
__ Substantial effect on tax base
__ Create demand for new governmental services
__ Population increase or relocation
Comments: No concerns. Drilling a wildcat well within an existing oil field, Flat Lake Field.

Remarks or Special Concerns for this site

Wildcat Bakken formation horizontal well, 12,335'MD/7,763'TVD, within an existing oil field, Flat Lake Field.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur, but can be mitigated in a short time.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: August 15, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center website.
(Name and Agency)
Sheridan County water wells
(subject discussed)
May 28, 2012
(date)
US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA COUNTIES, Sheridan County
(subject discussed)

May 28, 2012
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T37N R57E
(subject discussed)

May 28, 2012
(date)

If location was inspected before permit approval:
Inspection date: _
Inspector: _ _
Others present during inspection: _ _